



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,420	07/29/2003	Thomas Lee	006943.00310	6264
66811	7590	05/02/2008	EXAMINER	
BANNER & WITCOFF, LTD. and ATTORNEYS FOR CLIENT NO. 006943 10 SOUTH WACKER DR. SUITE 3000 CHICAGO, IL 60606			CHAWLA, JYOTI	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			05/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/628,420	LEE ET AL.	
	Examiner	Art Unit	
	JYOTI CHAWLA	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 25 February 2008.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 23-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 23-40 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 25, 2008 has been entered. Applicant's submission filed on September 20, 2007 has been entered. Claims 23-24, have been amended. Claims 23-40 are pending and examined in the application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 23 and 24 recite "increasing the pH of the lemon/lime flavored beverage to between about 3.2 and about 3.8" in step (b) and "Stability of the lemon/lime flavored beverage is improved by increasing the pH of the lemon/lime flavored beverage" in claims 23 and 24.

As recited the term "increasing the pH ...to between about 3.2 and about 3.8" is unclear which renders the claim indefinite. It is still not clear as to what standard base pH being used to measure a lemon/lime flavored beverage against which the increased pH provides an improvement. Furthermore, the claims as recited are unclear as to how much increase in the pH is desired to increase the stability of the lemon/lime flavored beverage. For the purpose of prior art comparison, a beverage in the recited pH range will be regarded as relevant prior art.

Claims 23-24 as recited are also unclear for the recitation of "wherein the lemon/lime flavor of the beverage is maintained and the beverage remains tart for at least seven months following manufacture" as it is not clear as to what is encompassed by the term "flavor is maintained and the beverage remains tart" as it is unclear as to what standard of tartness or sourness is being employed and further what is encompassed by "the... flavor of the beverage is maintained and the beverage remains tart for at least seven months following manufacture" as there is no standard recited against which the flavor and tartness of the beverage are being compared. Further the claims as recited only provide a range of pH for the beverage and it is unclear whether the pH range of about 3.2 to about 3.8 is at the time of manufacture or at any time during storage of the beverage or after seven months of manufacture. For the purposes of prior art comparison, a beverage with pH value in the recited range will be regarded as tart.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Determining the scope and contents of the prior art.
Ascertaining the differences between the prior art and the claims at issue.
Resolving the level of ordinary skill in the pertinent art.
Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

- (A) Rejection of claims 23-30 and 33-40 under 35 U.S.C. 103(a) as being unpatentable over Braun et al (US 4830862) in view of combination of Van Ness (US 3245798), and Nakel et al (US 4551342) made the previous office action dated January 9, 2008 has been withdrawn in light of applicant's amendment.
- (B) Rejection of claims 31-32 under 35 U.S.C. 103(a) as being unpatentable over Braun et al (US 4830862) in view of combination of Van Ness (US 3245798) and Nakel et al (US 4551342) further in view of Lee et al (US 5348756), made the previous office action dated January 9, 2008, has also been withdrawn in light of applicant's amendment.
- (C) Claims 23-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braun et al (US 4830862) in view of combination of Van Ness (US 3245798), Lee et al (US 5348756), and Nakel et al (US 4551342).

Regarding amended claims 23-28 and 35-40, Braun et al, hereinafter Braun, teaches a beverage compositions including lemon lime and cola flavored beverages (Columns 14-15) with acid component comprising citric, phosphoric and other edible acids including malic acid, fumaric acid and adipic acid and mixtures thereof, i.e., Braun teaches of edible acids having a smaller dissociation constant than citric and phosphoric acids, such as, adipic acid as instantly claimed. Braun also teaches of addition of salts including citrate and phosphate salts (Column 5, lines 53-68) to the beverage compositions as instantly claimed. Braun teaches carbonated beverages or soft drinks with lemon-lime and cola flavors (Column 8, line 58 and Column 9, lines 7-10, and

Art Unit: 1794

Column 14, lines 10-15) as recited in claim 23, 24, 37, 38, 39 and 40. Braun also teaches that the level of acid component depends on the beverage composition, the mouth feel, taste and stability properties desired (Column 6, lines 1-6). Braun also teaches that the mixture of acids or the total acid component vary in beverage concentrates from 1.2 to 20% by weight and for other beverages the total acids vary in the range from 0.07 to 2% (Column 6, 1-26).

Regarding the pH of the beverage, Braun teaches that pH of a beverage depends on three factors namely

1. Specific composition of the acid component;
2. total amount of acids used; and
3. Sourness impression desired.

Braun further teaches that typical pH range for 2.5 to 5.0 and preferred pH range for carbonated beverages is from about 2.5 to about 4.5 (Column 10, lines 45-53), which includes applicant's recited pH range of about 3.2 to about 3.8. Thus it was known at the time of the invention that varying the type of acid and the amount of acid in beverage compositions affects the taste and stability of the beverage (Braun). Braun further teaches specific examples where the amounts of citric acid 3.75 /1500 grams and 1.3/1000 grams, i.e., 0.13-0.25% acid by weight in lemon-lime flavored beverages, which falls in the ranges recited in claims 27 -28 by the applicant. Thus Braun teaches of beverages with the acidulant system comprising of citric acid, phosphoric acid with other acids such as adipic or malic or fumaric acid (i.e., oxidized succininc acid) as instantly claimed.

Braun is silent about the amount of adipic acid in a beverage. Van Ness teaches addition of adipic and/or fumaric acids (both acids with smaller dissociation constants than citric and phosphoric acids) as acidulants in beverages when made soluble by the addition of surfactants. Van Ness teaches that adipic and fumaric acids are effective acidulants for beverages and are used either in place of citric acid or in addition to the citric acid (Column 1, lines 15-70) in order to acidify the beverages. Thus Van Ness provides further evidence that the addition of edible acids with smaller dissociation

constants as compared to citric and phosphoric acids was known in the art of beverages at the time of the invention. Further it was also known that adipic or fumaric or both acids can be added in place of or in addition to citric acid in a beverage in order to alter the pH of the beverage as instantly claimed.

Regarding the tartness (sourness) of the lemon/lime flavored beverage, Lee teaches of powdered mixes for gels in various flavors and is solving the same problem as the applicant of maintaining sourness (tartness) in the gelable mix, without losing the gel strength. Lee teaches that by modifying the ratio of food acids with proper combination and ratio of buffer salts it is possible to raise the pH of the without lowering the desirable sour taste. Lee teaches of adipic, fumaric and citric acids as part of the acid component (Column 2, lines 32-42) and soluble phosphate and citrate salts as buffer salts at a ratio of 0.9-2: 1 and preferably of 1-1.5: 1(column 2, lines 34-49). The range of the buffer salt ratio taught by Lee includes the ratios recited by the applicant in Claims 31 and 32. Thus it was known at the time of the invention that calcium sodium and /or potassium salts of citrate and phosphate in the relative proportion as taught by Lee raised the pH without lowering the tartness when added to foods (Lee Column 2, lines 7-15). Therefore, it would have been obvious to the one of ordinary skill in the art at the time of invention to modify Braun to include a specific ratio range of the buffer salts used in the beverage as taught by Lee. One would have been motivated to do so in order to provide a beverage composition with increased pH while maintaining the desirable tartness and flavor.

Regarding the relative proportion of various acids in the beverage acidualnt system, Nakel et al, hereinafter Nakel, teaches beverages and beverage concentrates with improved flavor, desirable sweetness and sourness that could be controlled over a wide range of pH (column 2, lines 1-49) and the concentrates taught are storage stable and without the off flavors due to the insoluble salt formation on storage. Thus Nakel teaches of making the beverages that are storage stable and the flavor does not deteriorate over time, as instantly claimed.

The beverages taught by Nakel can be made as carbonated and noncarbonated, with various flavors and blended flavor components including cola, lemon and lime etc., and blends thereof (column 5, line 47 to column 6, line 15) and containing acidulants like citric acid and phosphoric acid as instantly claimed. Nakel also teaches addition of calcium, potassium and magnesium and other cations like sodium and ammonium in smaller amounts as acid salts i.e., as citrates, malates and phosphates to the beverage and beverage concentrates taught (column 6, lines 50-62 and column 4, line 63 to column 5, line 10) and (column 2, lines 14-20; column 7, lines 1-14; Column 10-13, Embodiments 1-9 and summary table). Thus, Nakel teaches of the acidulant system and buffer salts as recited in the rejected claims. Regarding the specific proportion of acids as recited in claims 27 and 28, Nakel teaches that the amount of citric acid in the beverage could be varied between 0.06- 0.96% which includes applicant's recited ranges.

Nakel teaches beverages and beverage concentrates with the organic acid and citric acid, and gives formula to determine the total acidity of the drink and that by varying the amounts of one or more of the acids, it can be determined whether the acid number of the beverage, which in turn would determine the acceptability of the beverage (column 8, line 48 to column 9, line 17). The formula taught is:

$$(8.7 \cdot \text{cit}) + (8.9 \cdot \text{mal}) + (11.4 \cdot \text{phos}) + (5.5 \cdot \text{cit} \cdot \text{mal}) - (0.6 \cdot \text{cit} \cdot \text{phos}) + (5.0 \cdot \text{mal} \cdot \text{phos}) + (30.1 \cdot \text{cit} \cdot \text{mal} \cdot \text{phos}) = A$$

Wherein cit is the weight ratio of citric acid in the acid component, mal is the weight ratio of malic, succinic or a mixture of malic and succinic acid, phos is the weight ratio of phosphoric acid, and A is from about 9.6 to about 12.1.

The formula assumes malic acid as the organic acid, however any other compatible organic acid could also be used. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute one art recognized functional equivalent (i.e. adipic acid) for another (i.e. malic/ succinic acid) in the beverage composition as disclosed by Braun in view of Nakel, depending on which

Art Unit: 1794

acidulating agent was more available and affordable at the time the invention was made. One of ordinary skill in the art at the time of the invention would have been further motivated to use adipic acid based on the property of adipic acid of having the lowest acidity of any food acids and it also imparts a slowly developing, smooth, mildly acid flavor. One would have been still further motivated to use adipic acid as it is non-hygroscopic, i.e., does not absorb moisture with ease, and thus is easy to store in dry form for prolonged period of time.

According to the formula of Nakel, if the resulting acid number (A) falls within 9.6 and 12.1, the beverage would have a desirable acid level. Thus additions of organic acids like malic, succinic, adipic or fumaric acid to a beverage with citric and /or phosphoric acids was known at the time of the invention as taught by Braun, Van Ness and Nakel. Therefore, it would be within the purview of one of ordinary skill at the time of the invention to experiment with various edible acids and the relative amounts of those acids and salts in order to find various combinations of salts and acids with acceptable acid number range as taught by Nakel. For example, if the ratio of organic acid: citric acid is taken as 1:3 or 1:4 as recited by the applicant in claims 23 and 25 respectively and plug in the numbers in the formula taught by Nakel, where amount of phosphoric acid is zero and organic acid: citric acid is 0.25:0.75 (i.e., 1:3 ratio) and 0.2:0.8 (i.e., 1:4 ratio) respectively. After plugging in the numbers it is noted that

<u>Ratio</u>	<u>Substitution in Formula</u>	<u>Solution</u>
1: 3→(8.7 X 0.75) + (8.9 X 0.25) + (5.5 X 0.75 X 0.25)	=	9.78
1: 4→(8.7 X 0.80) + (8.9 X 0.2) + (5.5 X 0.80 X 0.2)	=	9.62

Both the above ratios that have been recited by the applicant as acceptable acid ratios and their results fall within the accepted acidity range (A) of 9.6 to 12.1 for a stable beverage as taught by the formula of Nakel.

Further, regarding the ratio range of organic to phosphoric to citric acid in a beverage recited is 3.0 - 4.0: 1.4 - 2.0: 1.0 in claim 24 and 3.3 - 3.7: 1.6 - 1.8: 1.0 in claim 26 respectively. Nakel teaches beverages and beverage concentrates with the recited organic acid, phosphoric acid and citric acid and as discussed above. Nakel also teaches a formula to determine the total acidity of the drink (column 8, line 48 to column

9, line 17). Nakel teaches a ratio of 3.6: 1.4:1.3 in embodiment 2 (column 1, lines 15-30) which falls within the recited range of the applicant for the amount of organic acid and phosphate. The ratio taught by Nakel has more citric acid in proportion. Embodiment 2 taught by Nakel is only an example of the various acid combinations possible in preparing a beverage with low pH as taught by the formula of Nakel. Nakel also teaches that the amount of acid components can be adjusted to be used in combination with various cation salts or buffer salts in order to alter the flavor to desired level, i.e., sourness, tartness, delayed or lingering sourness etc.

Thus, regarding the acid proportion, Nakel teaches that by adjusting the concentration of acids in relation to the cations or buffer salts, it is possible to alter the pH and sourness (tartness) in the flavor of the resulting beverage (column 9, lines 10-17). Therefore, it would have been obvious to the one with ordinary skill in the art at the time of the invention to modify Braun based on the teachings from Nakel and include acids as taught the relative proportion as taught by Nakel in Embodiment 2 to achieve the desired stable (shelf stable) acidic beverage compositions.

Thus the following was known about the beverages with acidulant and buffer system in the lemon-lime flavored beverages

- Addition of adipic acid (edible acids with smaller dissociation constants as compared to citric and phosphoric acids) as part of the acidic component in a lemon/lime flavored carbonated beverages (Braun).
- The amount of acidic component added in a beverage can be varied can be a mixture of acids depends on the beverage composition, the mouth feel, taste and stability properties desired (Braun, Column 6, lines 1-6). Thus it was known at the time of the invention that varying the amount of acid in beverage compositions affects the taste and stability of the beverage (Braun).
- Beverages, including carbonated beverages, have a preferred pH range of 2.5 to 4.5 which includes applicant's recited range (Braun).

- Different acids vary at least in the intensity of acidity, rate of development of acid and/or tart flavor and deterioration of acidity or tartness over time under storage conditions per unit amount. Thus varying the types of acids in beverage and amount of total acids added in the beverage compositions affects the taste and acidity as well as tartness of the beverage.
- Addition of adipic acid as an organic acid in the acidulant composition for making a beverage either in addition or in place of citric acid was known in the art at the time of the invention (Braun and Van Ness).
- Regarding the relative proportion of acids, it was known that by adjusting the concentration of acids in relation to the cations or buffer salts, it is possible to alter the pH and sourness (tartness) in the flavor of the resulting beverage (Nakel, column 9, lines 10-17).
- Edible organic acids in various combinations can be used to make a stable beverage if the total acidity is in the range taught by the formula of Nakel.
- Soluble phosphate and citrate salts as buffer in the ratios recited by the applicant raised the pH without lowering the tartness.

Thus altering the relative amounts of edible acids in a beverage composition was known to a skilled artisan at the time of the invention. Therefore, it would have been a matter of routine optimization experimentation to one of ordinary skill at the time of the invention to modify beverage composition as taught by Braun and include organic acids such as adipic acid in relative amounts in order to keep the total acidity of the beverage in the desired range in order to make a beverage that has desirable tartness and pH and that remains stable upon storage, as taught by Nakel. It would also have been obvious to one of ordinary skill in the art at the time of the invention to vary the relative amounts of acids, based on the nature of acidity desired (e.g., early onset, delayed onset or sustained onset) or the availability of individual acid components at the time of the invention, as long as the total acid component falls in the acceptability range as taught by Nakel, which also includes applicant's recited range for claims 23-26. One would

have been further motivated to make use of adipic acid as part of the acidulant system of the beverage, as adipic acid is less hygroscopic than other food acids and provides slow developing mild acid flavor, as compared to citric and phosphoric acids and it does not absorb moisture from the atmosphere as taught by Van Ness, which would make dry beverage components to remain free-flowing, easily transportable and having a longer shelf-life. It would also have been obvious to one of ordinary skill in the art at the time of the invention to substitute one art recognized functional equivalent (i.e. adipic acid) for another (i.e. malic/ succininc acid) in the beverage composition as disclosed by Braun in view of Nakel, depending on which acidulating agent was more available and affordable at the time the invention was made, as discussed above.

Further it is noted that while the prior art does not expressly teach the exact ratios, it was well known to use the acids listed in shelf stable beverages in different amounts in order obtain the desired flavor (Braun, Van Ness and Nakel). Therefore, it is not seen how the specific ratios claimed by the applicant would create an unexpected result, absent any clear and convincing evidence and arguments to the contrary.

Regarding the limitation claims 23 and 24 that recite "beverage remains tart for at least seven months" it is noted that the method as disclosed with its components is taught by the combination of references. Claims 23 and 24 do not recite any specific steps other than the combination of acidualnt and buffer salts that is responsible for the beverage remaining tart for at least seven months. Since the prior art of record teaches that acids and buffers in the recited ratios were known to be added to foods and beverages for the reasons of increasing pH while maintaining tartness (recited by the applicant), therefore, not only will it be obvious to one of ordinary skill in the art at the time of the invention that the beverage with the taught acid and buffer system will remain tart upon storage, but one will also have a reasonable expectation of success. Also regarding the limitation claims 23 and 24 that recite "beverage remains tart for at least seven months" it is noted that applicant has described the product with parameters and equations which cannot be measured by the office for prior art comparison, because the office is not equipped to manufacture prior art products and compare them

for patentability purposes. Therefore, as a *prima facia* case of obviousness has been properly established, the burden is shifted to the applicant to show that the prior art product is different. Thus, the invention as recited in claims 23 and 24 would have been obvious over Braun in view of combination of Van Ness, Lee and Nakel, absent any clear and convincing evidence and/or arguments to the contrary.

Regarding claim 29 and 30, Braun teaches calcium salts of acids like citrate and phosphate to the beverages in the form of mono-, di-, tri ionic forms, i.e., calcium phosphate, calcium hydrogen phosphate and calcium dihydrogen phosphate, (Column 5, lines 5-15) as recited by the applicant.

Claims 31 and 32 recite the ratio of citrate and phosphate salt. Braun teaches that the level of total acids in the beverage depends on the beverage composition, proportion of calcium based cationic or buffer salts, mouth feel, taste and stability desired and for beverages that do not contain fruit juice can have the acid range of 0.2-5% by weight, which is different from fruit juice based beverages (Column 6, lines 1-26).

Nakel, teaches the use of mixtures of calcium salts in the beverages which, act as buffers, can be present in the beverage composition either as carbonates, hydroxides, bicarbonates or sour salts (citrates etc.). However, both Braun and Nakel are silent as to the exact relative proportion of these salts in the beverage composition taught.

Lee teaches of powdered mixes for gels in various flavors and is solving the same problem as the applicant of maintaining sourness (tartness) in the gelable mix, without losing the gel strength. Lee teaches that by modifying the ratio of food acids with proper combination and ratio of buffer salts it is possible to raise the pH of the without lowering the desirable sour taste. Lee teaches of adipic, fumaric and citric acids as part of the acid component (Column 2, lines 32-42), as also recited by the applicant. The buffer salts as taught by Lee to neutralize the acidity of citric and adipic acids with soluble phosphate and citrate salts at a ratio of 0.9-2: 1 and preferably of 1-1.5: 1(column 2, lines 34-49). The range of the buffer salt ratio taught by Lee includes the ratios recited by the applicant in Claims 31 and 32.

Thus it was known at the time of the invention that:

- Calcium sodium and /or potassium salts of citrate and phosphate were used as additives in the beverages.
- Citrate and phosphate salts in the recited relative proportion were recognized as advantageous in raising the pH without lowering the tartness when added to foods (Lee Column 2, lines 7-15).

Therefore, it would have been obvious to the one of ordinary skill in the art at the time of invention to modify Braun to include a specific ratio range of the buffer salts used in the beverage as taught by Lee. One would have been motivated to do so in order to provide a beverage composition with increased pH while maintaining the desirable tartness and flavor.

Regarding claims 33-36 Braun is silent about the combined amount of citrate and phosphate salts present in the beverage where two or more acidulants are being used. Nakel teaches the citrate and phosphate salts as the cation or buffer component. Nakel teaches that the buffer for a liquid carbonated beverage ranges between 0.1-0.6 % by weight (Column 9, lines 4-5) which falls in the range recited by the applicant in claims 33-36. Nakel also provides general formulas that can be used to determine the right amount of total cations in the beverage in proportion to the acidulants (edible acids) and vice versa to give a general idea of an acceptable range for acid and cation for any beverage flavor taught. Thus the combined amount of citrate and phosphate salt in the ranges recited by the applicant was known at the time of the invention, as taught by Nakel. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to modify Braun and add the total cation component in the range taught by Nakel in order to have an effective amount of cation component depending on the beverage formulation, flavor component cation-acid mixture effect desired (Nakel, Column 8, lines 60-68).

Regarding claim 37-40, Braun and Nakel both teach lemon-lime and cola type beverages, with or without carbonation as discussed in the office action above.

Thus, the invention as recited in claims 23-40 would have been obvious over Braun in view of combination of Van Ness, Lee and Nakel, absent any clear and convincing evidence and/or arguments to the contrary.

Response to Arguments

Applicant's arguments filed February 25, 2008 have been fully considered but they are moot in view of new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JYOTI CHAWLA whose telephone number is (571)272-8212. The examiner can normally be reached on 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jyoti Chawla
Examiner
Art Unit 1794

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art Unit 1794